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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/529,558

06/17/2005

Hiromichi Mizuno

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10/17/2006

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EXAMINER

SHARP, JEFFREY ANDREW

ART UNIT

PAPER NUMBER

3677

DATE MAILED: 10/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/529,558	MIZUNO ET AL.	
	Examiner	Art Unit	
	Jeffrey Sharp	3677	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 August 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) 9-11 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 March 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

[1] This action is responsive to Applicant's remarks/amendment filed on 04 August 2006 with regard to the Official Office action mailed on 04 May 2006.

Status of Claims

[2] Claims 1-11 are pending. Claims 9-11 are withdrawn.

Claim Objections

[3] Claim 1 is currently objected to because of informalities. It appears the word "portion" (first word on line 16) should be --portions--. It appears the word "which" (ninth word of line 17) should be deleted, consistent with page 8, lines 4 and 5 of the remarks filed on 04 August 2006.

Claim Rejections - 35 USC § 112

[4] The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

[5] Claims 1-8 were previously rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Applicant has successfully addressed all previous issues of indefiniteness in the amendment filed on 04 August 2006. Accordingly, all previous rejections of the claims under 35 U.S.C. 112, second paragraph have been withdrawn.

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Response to Arguments/Remarks

[6] Claims 1-8 were previously rejected under 35 U.S.C. 102(b) as being anticipated by Russo, US-4,673,323.

Applicant's arguments/remarks with regard to this rejection have been fully considered, but are not persuasive as claim 1 currently stands amended. The examiner cannot find how the limitation "at least a portion of the screw thread which is lower in height than other screw thread portions which are formed continuously and remains intact on said notch portion" is definite, or how it further limits the scope of claim 1.

However, as stated later in this Office Action, if this limitation (last stanza of claim 1) was re-written as: "wherein the notch portions are shallow such that the core diameter of each notch portion is larger than the core diameter of the screw thread at the same location", as suggested by the remarks, page 8, lines 4 and 5, this rejection would be withdrawn.

For the purposes of expediting prosecution, and in the best interest of Applicant, the Examiner has treated the claims with the latter interpretation. Accordingly, new grounds of rejection necessitated by amendment is made below.

New Grounds of Rejection

Claim Rejections - 35 USC § 112

[7] The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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[8] Claims 1-8 are currently rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In short, the exact scope of claim 1, last paragraph cannot be determined. The claims are generally narrative and indefinite, failing to conform with current U.S. practice. This may be the result of an inadvertent grammatical error. This limitation has been treated as: "wherein the notch portions are shallow such that the core diameter of the notch portion is larger than the core diameter of the screw thread, so as to extend rolling die life", which is found in the remarks, page 8, lines 4 and 5.

Claim Rejections - 35 USC § 102

[9] The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent

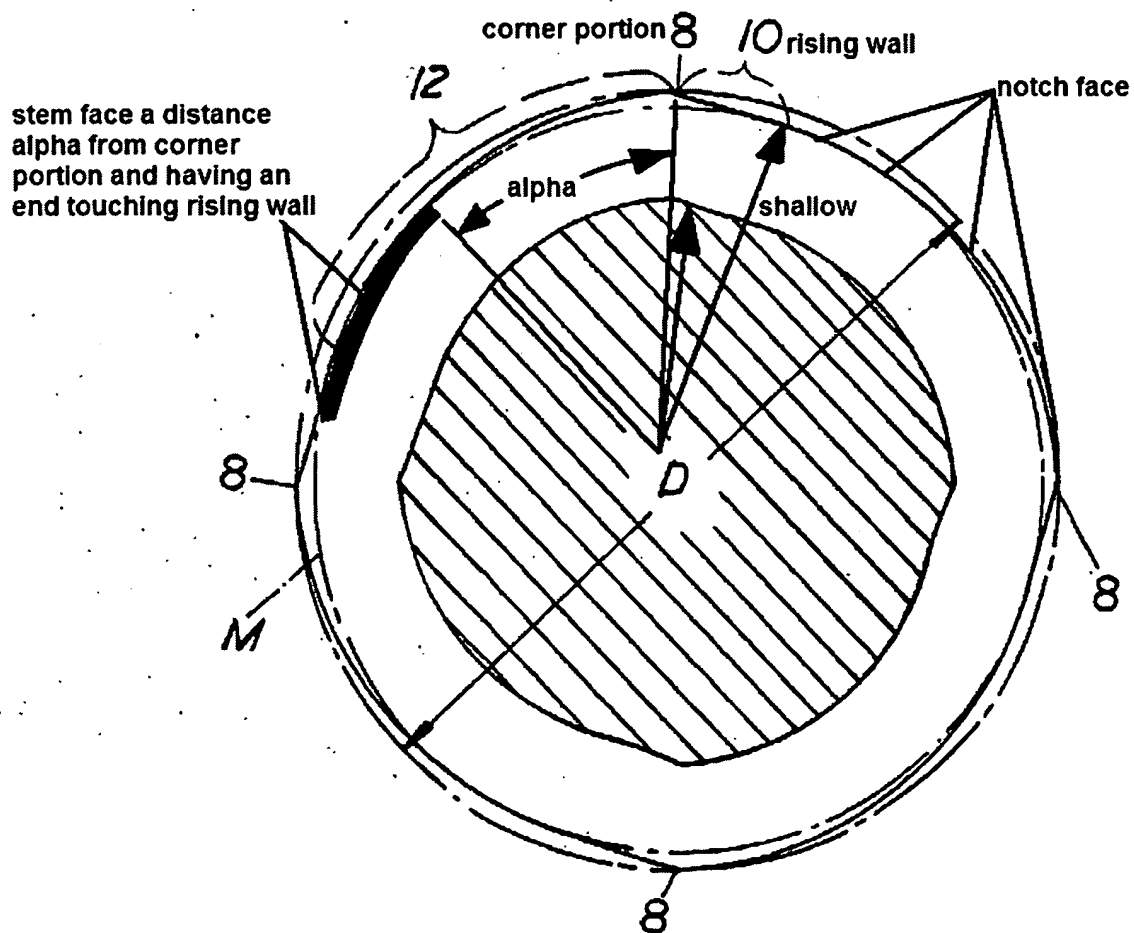
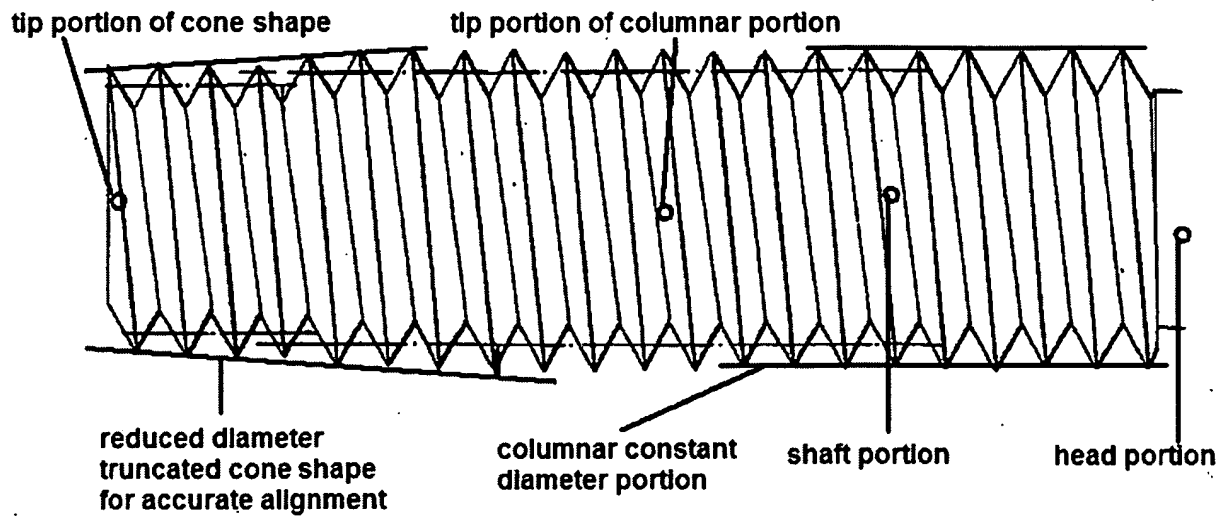
(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

[10] As they are understood, claims 1, 2, and 4-8 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Scott US-3,248,747 as shown below.

Examiner believes that it is Applicant's intention to define the present invention over Russo-US-4,673,323 by limiting the tapping screw in such a way that the notch portions do not protrude through the root (minor) diameter of the thread (last stanza of claim 1). While Examiner agrees that Russo does not teach "wherein the notch portions are shallow such that the core diameter of each notch portion is larger than the core diameter of the screw thread at the same location", as suggested by the remarks, page 8, lines 4 and 5, Scott teaches a tapping screw that has notch portions that "are shallow" so as to not "dig into" the root diameter of the thread. While Applicant states that a shallower notch of the present invention not taught by Russo decreases wear on a rolling die, Scott teaches an alternative advantage for shallow notches such as allowing the tapping screw to form a female screw thread via deformation and cold-working, rather than "cutting" which causes undesirable chips. As annotated below, Scott clearly shows a head portion, shaft portion extending from said head portion, and a reduced diameter truncated cone section for alignment purposes. The threads have notch portions comprising corner portions (8), rising walls (10), and notch faces (12). Each notch face (12) has a stem face displaced an angle (α) from a corner portion (8) -- said stem face sharing an end with an adjacent rising wall (10) as suggested in claim 5. As for claim 8, notches are present in the location between the tip portion of the columnar constant diameter portion and a few thread pitches from the tip portion.

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[11] As they are understood, claims 1-7 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Walther et al. US-6,152,666.

Examiner believes that it is Applicant's intention to define the present invention over Russo-US-4,673,323 by limiting the tapping screw in such a way that the notch portions do not protrude through the root (minor) diameter of the thread (last stanza of claim 1). While Examiner agrees that Russo does not teach "wherein the notch portions are shallow such that the core diameter of each notch portion is larger than the core diameter of the screw thread at the same location", as suggested by the remarks, page 8, lines 4 and 5, Walther et al. teach a tapping screw that has notch portions (22) that "are shallow" so as to not "dig into" the root diameter of the thread. While Applicant states that a shallower notch of the present invention not taught by Russo decreases wear on a rolling die, Walther et al. teach an alternative advantage for shallow notches such as facilitating insertion of the screw, reducing force required to drive the screw, retaining a good torque strength, and avoiding tendency of self-loosening once in place. Walther et al. clearly show a head portion (12), shaft portion (10) extending from said head portion, and a reduced diameter truncated cone section (16) for alignment purposes. The threads have notch portions (22) comprising corner portions (not labeled), rising walls (27), and notch faces (17). Each notch face (17) has a stem face (26) displaced an angle (α) from a corner portion -- said stem face (26) sharing an end with an adjacent rising wall (27) as suggested in claim 5.

Claim Rejections - 35 USC § 103

[12] The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

[13] As it is definite, claim 2 is alternatively rejected under 35 U.S.C. 103(a) as being unpatentable over Scott US-3,248,747 in view of Berman US-2,507,882.

In short, Scott substantially teaches a tapping screw comprising all the limitations of claim 1 as it is understood/definite:

However, Scott fails to disclose expressly, the rising walls to be "perpendicular" to the screw rotation direction. Note the term "substantially" is a rather broad term. --*In re Nehrenberg (CCPA) 126 USPQ 383*. Therefore, Scott's rising wall (10) could be broadly construed as "substantially perpendicular" to the direction of rotation.

Berman suggests a rising wall (5) "perpendicular to the screw rotation direction, said perpendicular rising wall increasing the "self-tapping" effectiveness.

Therefore, at the time of invention, it would have been obvious to one of ordinary skill in the art to modify the relative angle of the rising wall taught by Scott, to be "substantially perpendicular" to the direction of rotation as suggested by Berman, in order to improve the self-tapping characteristics of the tapping screw.

Conclusion

[14] The prior art made of record and not relied upon is considered pertinent to applicant's disclosure is as follows: See form PTO-892.

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[15] Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

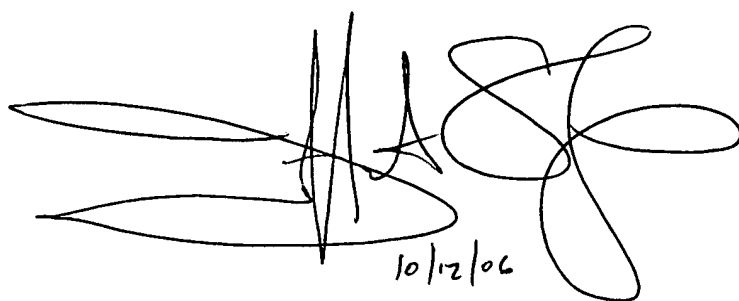
[16] Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey Sharp whose telephone number is (571) 272-7074. The examiner can normally be reached 7:00 am - 5:30 pm Mon-Thurs.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, J.J. Swann can be reached on (571) 272-7075. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JAS



10/12/06



ROBERT J. SANDY
PRIMARY EXAMINER